

National Aeronautics and Space Administration Goddard Space Flight Center

Wallops Flight Facility, Wallops Island, Virginia

Inside Wallops

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Tiny Hearts Monitored by NASA Technology

A NASA technology originally used to measure airflow over airplane wings has been successfully used to develop a portable, non-invasive, easy-to-use fetal heart monitor.

The new clinically proven fetal heart monitor takes advantage of aerospace technology to make it more affordable, portable and easy to use by expectant mothers in their own homes. What's more, it "listens, documents and stores" fetal heart-rate data without injecting energy into the womb, making it totally non-invasive.

A team of aerospace researchers from NASA's Langley Research Center worked with Veatronics, Inc., of Charlotte, NC, to convert the technology to this innovative medical application. NASA granted the company a license to market one or more commercial products based on the technology.

"Because the material we used for wing surface measurements is flexible, it is ideally suited to fit over the curved

surface of a m a t e r n a l abdomen for fetal testing," said Allan Zukerwar of Langley's A d v a n c e d Measurement and Diagnostics Branch



Fetal Heart Monitor NASA Photo

said Dr. Kevin Gomez, a specialist in maternal fetal medicine at Atlanta Perinatal Associates, Atlanta, GA. "Instead of having patients travel to where the technology is, have the technology travel to the patients."

Dr. Gomez led a recently completed series of NASA-sponsored clinical trials at Morehouse School of Medicine in Atlanta. Clinical trials also were sponsored at Eastern Virginia Medical School, Norfolk, VA, and at Encino/Tarzana Medical Center, Encino, CA. Among other things, the trials are expected to establish that the NASA acoustic monitor meets federal Food and Drug Administration guidelines. Results are being compared to those recorded via Doppler ultrasound and scalp-electrode monitors, and also to standard accepted measurements.

The Morehouse trials, along with continuing investigations at Atlanta Perinatal, proved to Dr. Gomez's satisfaction that the technology offers an easy-to-use alternative to visits to the doctor's office. This is especially

important, he explained, for high-risk patients who should be examined twice a week or more, or for patients who cannot easily travel. All of Dr. Gomez's patients are considered high-risk, due to maternal complications of pregnancy or fetal abnormalities.

Even perfectly healthy patients may not be able to afford the time or money for periodic trips to the doctor — or may find themselves ordered to long periods of bed rest.

The new method of checking fetal heart behavior might actually prove to be a better way of monitoring some pregnancies than technologies now in use. In addition, the system could provide objective data to complement information gained from other methods.

sors over her belly, tune a sized control device to hear the rtbeat and send the signal or her doctor's office via the

Featuring:

NASA, Navy, NOAA, U.S. Coast Guard, and Virginia Space Flight Center

Wallops Shorts...... Sounding Rocket Launch

A NASA Black Brant XII sounding rocket was successfully launched from the Poker Flat Research Range, AK on Feb. 25

The experiment was to measure particle acceleration and wave production in the auroral ionosphere simultaneously from three points in space. The main payload ejected two free flying subpayloads that made identical measurements as they moved away from the main payload. Science data was obtained from the main payload as well as both sub-payloads. The principal investigator was Dr. Chuck Carlson of the University of California, Berkley.

Actual altitude achieved was 739 miles (1190.7 km), predicted altitude was 765 miles (1230.7 km).



Carl Johnson, Information Services and Advanced Technology Branch, and Wicomico High School teacher, Beth Royal, prepare for a presentation to students in Royal's Computer II class during Engineers Week activities.

PAO Digital Photo.

Endeavour Crew Lands; Completes Successful Mapping Mission

The crew of STS-99 ended their mission to obtain data for a detailed topographical map of the Earth when Commander Kevin Kregel set Endeavour down Feb. 23 on Runway 33 at the Shuttle Landing Facility at the Kennedy Space Center. The landing also completed the first Shuttle mission of the 21st century.

During the Shuttle Radar Topography Mission, Endeavour's radar covered almost 99 percent of the planned mapping area at least once. The crew returned with 332 high-density data tapes (roughly equal to 20,000 CD-ROMs) containing images obtained by the Shuttle's radar. The data will be used to create the most complete global maps of Earth ever developed.

NASA developed the portable technology at the suggestion of a medical doctor in a remote area that suffers from a lack of appropriate health care. For several reasons, when expectant mothers do not receive

necessary prenatal care, the result is

often increased fetal mortality.

Current fetal heart-monitoring devices

generally work well but cost many

thousands of dollars and can only be

used in a clinic or doctor's office.

In its present form, an at-home patient would strap a wide, soft belt embedded with sensors over her belly, tune a computerized control device to hear the fetal heartbeat and send the signal directly to her doctor's office via the Internet. The device is as easy to use as tuning a radio, which one doctor considers essential to its ultimate

"I think the portability of this technology will make it very useful,"

success.

Health Hints On-Line

by R. Barry Spinak, M.D.

The monthly newsletter from the Wallops Health Unit is available online through the Health Unit web page: http://www.wff.nasa.gov/~healthline/wff_health.html Click on the link to the Health Hints issue of your choice (November 1999 to February 2000).

To see the current issue (February) you can go to http://www.wff.nasa.gov/~healthline/200cover.html.

Paper copies of Health Hints also are available at the Health Unit, Building F-160. Be sure to check the Health Unit web site regularly for timely announcements and new articles.

St. Patrick's Day Dinner & Dance



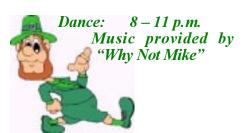
March 17

Building F-3 -- Rocket Club

Dinner: 6-8 p.m.
Corned Beef
and Oven
Baked
Chicken

ering

Catered by W.W. Catering & Jonithan Stone



\$15 - Dinner and Dance \$3 - Dance Only

For tickets call Pam Milbourne, x2020 or Sandy Gunter, x1454.

Tips from the Gardner

Growing plants from seeds and transplants is an economical way to start your garden. The first year a young perennial spends in the garden is generally devoted to expanding its root system and growing new stems and leaves. If the plant does bloom, it will not be as showy as it will be in later years.

Avoid the temptation to space small plants close together because it's important to allow enough room for future growth. They won't grow to their full potential if they are crowded.

Although perennials are hardier than annuals, they still need to be gradually acclimated to outside conditions before being transplanted into the garden. A cold frame makes an ideal transitional home for transplants.

This space reserved for mailing labels.

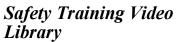
Post-Retirement Transition Program Briefings

Goddard Space Flight Center is offering several retirement transition programs for employees considering OPTIONAL retirement. The Center does not have Early-Out or Buy-Out authority.

Briefings on these programs will be held at Wallops on Feb. 29, 10 to 11:30 a.m., in Building E-104, Room 310. The briefings will be held at Greenbelt on March 1 and 7, 1 to 2:30 p.m., in Building 1, Room E100B.

For more information, contact Janet Morgan on x66-4709 or Khrista White on x66-8208.

Safety is as easy as ABC. Always Be Careful.



The Wallops Safety Office has safety training videos available for check-out at the Wallops Library in Building E-105. These videos are suitable for employee training and for monthly safety meetings. The following is a listing of available training videos:

Wallops Safety Awareness GSFC Safety Awareness Hazard Communication NASA Safety Reporting System Completing NASA Form 1627 Chemical Hygiene (3 Modules) Arctic Survival Indoor Air Quality

For more information, visit the Wallops Safety Office web site at http://www.wff.nasa.gov/~code803/pages/resources.html.



Scott Webb (right) and Jay Savage, Information Services and Advanced Technology Branch, and Betty Flowers, Public Affairs Office, spoke to Northampton High School and Broadwater Academy students during a Career Fair held at Northampton High School on Feb. 23.

PAO Digital Photo.

Post Retirement Transition Program February 29 10 a.m. - Noon Building E-104 Room 310



American Red Cross

Blood Drive March 27, 2000 9:30 a.m. - 2:30 p.m. Building F-3

Call the Health Unit, x1266 for an appointment.

Wallops Fire Department Responses

Feb. 10 through Feb. 24

- 74 Aircraft standbys
 - 1 Aircraft emergency engine fire
 - 1 HazMat spill
- 6 Fire alarms
- 1 Ambulance call
- 1 Mutual aid ambulance call to Chincoteague
- Mutual aid structure fire to assist Greenbackville Volunteer Fire Department with a fire at historic Corbin Hall.

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Editor Betty Flowers
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http://www.wff.nasa.gov